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REMARKS

Claims 1-8, 11, 13-14 and 17-25, 48 and 49 are pending in the application. Claims 9, 10, 12, 16 and 17 have been canceled. Claims 26-47 have been withdrawn from consideration. Claims 1 and 48 have been amended. No new matter has been added. Support for all amendments can be found in the specification as originally filed.

CLAIM OBJECTIONS

1. Claim 48 was objected to because of the misspelling of the word "shied" in line 1.

Claim 48 has been corrected with the corrected spelling of the word "shield".

Reconsideration is requested.

REJECTIONS UNDER 35 USC 103

1. Claims 1, 6-8, 11-14, 18, 19, 24, 25 and 48 stand rejected under 35 USC 103(a) as being unpatentable over Carr in view of Hirschman, and further in view of Culver. This rejection should be withdrawn in view of the amendments made hereinabove.

Office Action alleges that regarding claim 1, Carr et al disclose a sensor device comprising a microwave antenna element used to detect a change in the level of fluid within tissue of a body (col. 3, lines 30-52), but do not specifically disclose the sensor device comprising a housing having a plurality of bridge segments, the bridge segments connecting at intersections and being arranged to circumscribe an opening defined by the housing and a plurality of elements at least partially seated within the housing at intersections of the bridge segments, each of the plurality of elements comprising a generally plane mounted to a substrate material at a base of the plane, an outer surface of the plane facing away from the substrate, each of the plurality of elements further comprising an electrical shield surrounding the substrate, or at least a first element pair and a second element pair, the first element pair comprising a first transmitting element and a first receiving element, the second element pair comprising a second transmitting element and a second receiving element. However, Hirschman teaches a sensor device comprising a housing having a plurality of bridge segments, the bridge segments connecting at intersections and being arranged to circumscribe an opening defined by the housing (col. 7, lines 49-52);

see Fig. 4), and a plurality of elements at least partially seated within the housing at intersections of the bridge segments, each of the plurality of elements comprising a generally plane mounted to a substrate material at a base of the plane, an outer surface of the plane facing away from the substrate (col. 7, lines 49-67 ... col. 8, lines 3-4), each of the plurality of elements further comprising an electrical shield surrounding the substrate (col. 6, lines 39-43; col. 7, lines 62-65), and a plurality of elements comprising at least a first element pair and a second element pair, the first element pair comprising a first transmitting element and a first receiving element, the second element pair comprising a second transmitting element and a second receiving element (col. 2, lines 66- 67 ... col. 3, lines 1-18). Neither, Carr et al nor Hirschman specifically disclose that the first antenna element pair and the second antenna element pair are spaced from each other to create an area of reduced sensitivity between the first antenna element pair and the second antenna element pair. However, Culver et al teach a source and detector setup where a gradient of sensitivity is defined by boundary contours (col. 7, lines 40-51). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to apply the teachings of Hirschman to Carr et al as to provide a well-adapted structure through which to apply extravasation detection, and Culver et al to Carr et al and Hirschman, as to provide differential sensitivity of detection for different geometries of tissue.

Claim 1 is directed to a sensor device and has been amended to include subject matter similar to that of canceled Claim 12. Claim 1 includes a first and second bridging segments and "a first high sensitivity zone is formed between the first transmitting antenna element and the first receiving antenna element and a second high sensitivity zone is formed between the second transmitting antenna element and the second receiving antenna element , and wherein the first antenna element pair and the second antenna element pair are spaced from each other to create an area of reduced sensitivity between the first antenna element pair and the second antenna element pair." Support for the these amendments is found in the specification and claims as filed including at paragraph 69 and the cancelled claims. No new matter has been added. Further, Claim 13 also includes similar subject matter of reduced sensitivity. Neither, Carr, Hirshman or Culver, either alone or in combination teach or suggest Applicants' invention of Claims 1 and 13, including a first or second high sensitivity zone between a corresponding transmitting and receiving antenna element, an area of reduced sensitivity between the first antenna

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element pair and the second antenna element pair, or bridging segments in Claims 1 and spacing segments in Claim 13. Further, the other cited art does not remedy these or any other deficiencies. Thus, reconsideration is requested.

With regard to Claims 11 and 18, Culver does not teach or suggest Applicants' invention of the location of the antenna pairs, namely, that "the space between the first antenna element pair and the second antenna pair is set so that the sensor is insensitive to fluid changes of a predetermined volume within the area of reduced sensitivities." Culver teaches that the distance between any of the light source and light sensors does not have any effect on the sensitivity of detecting extravasation. Thus, Culver teaches no differential of sensitivity between a first antenna pair and a second antenna pair. Although Culver discusses having multiple receivers and transmitters, there is no teaching of any structure to create insensitivities of a predetermined volume with a specific area relative to the transmitters and receivers. Claims 11 and 18 are believed to be allowable and reconsideration is requested.

The Office Action alleges correctly that regarding claims 12 and 19, Carr et al disclose antenna elements (col. 3, lines 30-52) and Hirschman discloses the application of RF electrical energy to such elements (col. 7, lines 49-55), but neither Carr et al nor Hirschman specifically disclose a first area of higher sensitivity being defined by the area between the first transmitting element and the first receiving element and a second area of higher sensitivity is defined by the area between the second transmitting element and the second receiving element.

The Office Action further alleges that, Culver et al teach a source and detector setup where a gradient of sensitivity defined by boundary contours (col. 7, lines 40-51) and that multiple sources can be paired with multiple detectors (col. 13, lines 15-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to apply the teaching of Culver et al to Carr et al and Hirschman, as to provide differential sensitivity of detection for different geometries of tissue using more than one source/detector pair.

However, these sensitivity boundary contours are located one above the other and overlap over the receivers 22' and 22". So there is no "the first antenna element pair and the second antenna element pair are spaced from each other to create an area

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of reduced sensitivity between the first antenna element pair and the second antenna element pair" as incorporated from cancelled claims 12 into amended Claim 1.

The Office Action alleges, with regard to claim 13 that neither Carr et al nor Hirschman specifically disclose that the element pairs are spaced from each other to create an area of reduced sensitivity between the first antenna element pair and the second antenna element pair. Then the Office Action further alleges that, Culver et al teach a source and detector setup where a gradient of sensitivity defined by boundary contours (col. 7, lines 40-51).

However, these boundary contours create sensitivity that varies a depth from the detectors. For example, light source 20 to detector 22' results in sensitivity contour 62 where fluid 64 is a larger signal than fluid 66 spaced farther from the detector 22'. In Culver, this does not create an area of reduced sensitivity between the first antenna pair and the second antenna pairs.

The Office Action's allegation that "multiple sources can be paired with multiple detectors (col. 13, lines 15-20)" is mentioned in Culver, is incorrect because Culver does not disclose an antenna element pair with a transmitting antenna and receiving antenna and then using at least two antenna element pairs to create reduced sensitivity areas.

Claims 6-8, 11-12, 13-16, 18-19, 24, 25 and 48, Claims 6-8, 13-16, 24, 25 and 48 depend from claims 1 and 13, either directly or indirectly. As discussed, Claim 1 and 13 are believed to be allowable, thus claims 6-8, 11, 13-16, 18-19, 24 and 25 are also believed to be allowable. Accordingly, reconsideration of Claims 6-8, 11, 13-16, and 18-25 is respectfully requested.

2. Claims 2-5 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr et al (US Patent No. 5,334,141) in view of Hirschman (US Patent No. 6,408,204 B1), and further in view of Culver et al (US Patent No. 6,487,428 B1), as applied to claims 1 and 13 above, and further in view of Cudahy et al (US Patent No.

5,184,620). This rejection should be withdrawn in view of the amendments made hereinabove.

Regarding Claims 2-5 and 20-23 depend from claims 1 and 13, either directly or indirectly. As discuss, Claim 1 and 13 are believed to be allowable, thus claims 2-5 and 20-23 are also believed to be allowable. Further, Cudahy does not remedy any of the deficiencies of Carr and Hirschman. Thus, reconsideration of Claims 2-5 and 20-23 is requested.

RESPONSE TO ARGUMENTS

The Office Action states that: Claims 27-33 are recited as being dependent upon claim 25, hence they are assumed to actually depend upon claim 26 in view of the preamble and claim limitations set forth, and therefore are also withdrawn from consideration. Applicant understands that Claims 27-33 should have been dependent from Claim 26 and an inadvertent typo was made in the specification, thus Applicant agrees that Claims 27-33 should be withdrawn without prejudice for applicant to file in a divisional case.

New Claim

New Claim 49 is added and supported can be found in the specification as originally filed at paragraph 58. No new matter has been added. The cited art does not teach or disclose such a sensor device. Accordingly, consideration is requested.

In view of the above amendments and remarks, Applicants submit that the claims are in condition for allowance and the Examiner would be justified in allowing them.

Respectfully submitted,

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